AMENDMENTS TO THE SPECIFICATION

Please amend the specification, as follows:

Replace paragraph [0001] with the following amended paragraph [0001]:

This application claims priority ~~under 35 U.S.C. § 119~~ from Korean Patent Application No. 10-2003-<ins>0004</ins>023, filed <ins>on</ins> January 21, 2003, in the Korean Intellectual Property Office (KIPO), the ~~disclosure~~ <ins>entire contents</ins> of which [[is]] <ins>are</ins> incorporated herein ~~in its entirety~~ by reference.

Replace Equations III on page 7 with the following amended Equations III:

$$e(n) = s^*(n) - y^{*T}(n)c(n-1)$$

$$c(n) = c(n-1) + \underline{\mu e(n)y(n)} \ \sout{\mu r(n)y(n)}$$

Replace Equations IV on page 8 with the following amended Equations IV:

$$[[k(n)]] \ \underline{K(n)} = \varphi^{-1}(n-1)y(n)/[1 + y^{*T}(n)\varphi^{-1}(n-1)y(n)]$$

$$e(n) = s^*(n) - y^{*T}(n)c(n-1)$$

$$c(n) = c(n-1) + K(n)e(n)$$

$$\varphi^{-1}\underline{(n)} = \varphi^{-1}(n-1) - K(n)y^{*T}\underline{(n)}\varphi^{-1}(n-1)$$

Replace paragraph [0024] with the following amended paragraph [0024]:

Assuming that the formula commonly expressed in the Kalman gain vector of Equation IV is $J(n)$, a transformation formula $J^T(n)$ of the formula $J(n)$ can be expressed by the Equations V:

Replace Equations V on page 9 with the following amended Equations V:

$$J(n) = \varphi^{-1}(n-1)y(n)$$
$$J^T(n) = [y^{*T}(n)\varphi^{-1}(n-1)]$$

Replace Equations VI on page 9 with the following amended Equations VI:

$$J(n) = \varphi^{-1}(n-1)y(n)$$
$$K(n) = J(n)/[1 + y^{*T}(n)J(n)]$$
$$e(n) = s^*(n) - y^{*T}(n)c(n-1)$$
$$c(n) = c(n-1) + K(n)e(n)$$
$$\varphi^{-1}(n) = \varphi^{-1}(n-1) - K(n)J^T(n) y^{*T} J^T$$

Replace paragraph [0026] with the following amended paragraph [0026]:

The amount of calculation of a channel equalizer using the conventional Kalman algorithm of Equations IV is $3N^2$ when the amount of calculation of $\phi^{-1}(n-1)y(n)$ is N^2, whereas the amount of calculation of the channel equalizer 300 using the Kalman algorithm of Equations VI, according to an exemplary embodiment of the present invention, will be N^2 because $J(n)$ is replaced once with $J^T(n)$. Therefore, the amount of calculation of the channel equalizer 300 using the Kalman algorithm according to the exemplary embodiment of the present invention can be reduced by about two thirds.

Replace paragraph [0031] with the following amended paragraph [0031]:

FIG. 3 is a block diagram of a channel equalizer 300 according to an exemplary embodiment of the present invention. As illustrated in FIG. 3, a filtering circuit 400 of the channel equalizer 300 includes an M-tap forward filter 410, an N-tap feedback filter 420, and an adder 430. It is believed that the structure and operation of the illustrated filtering circuit 400 will be well known to those skilled in the art and that detailed descriptions of the structure and operation are, therefore, unnecessary

Replace paragraph [0035] with the following amended paragraph [0035]:

The adder 430 adds signals output from the M-tap forward filter 410 and the N-tap feedback filter 420 together and outputs the addition result, *i.e.*, a signal $y^{*T}(n)c(n-1)$, to the determination circuit 540 and the subtracter 500. The determination circuit 540, which may be a slicer, determines a value of the signal $y^{*T}(n)c(n-1)$ to a certain value and outputs the certain value to the ~~decoder 510~~ multiplexer 560. The certain value corresponds to the output value $s*(n)$ of the equalizer having an updated coefficient, *i.e.*, the equalized output value $s*(n)$.

Replace paragraph [0051] with the following amended paragraph [0051]:

First, in step 210, the CEC unit 590 determines whether the error $e(n)$ of the channel equalizer 300 converges within the range of a threshold of visibility *TOV* and outputs the ~~determination~~ comparison result *COMO*. In detail, according to exemplary embodiments of the invention, the CEC unit 590 determines whether the square of the error $e(n)$ converges within the range of the threshold of visibility *TOV*, as illustrated in T1, and outputs the ~~determination~~ comparison result *COMO*.

Replace paragraph [0052] with the following amended paragraph [0052]:

If the square of the error *e(n)* is smaller than the threshold of visibility *TOV*, *i.e.*, converges, a signal output from the CEC unit 590 is activated, that is, the signal has a logic value of "1". If, however, the error *e(n)* falls outside the range of the threshold of visibility *TOV*, *i.e.*, diverges, the error covariance register 5201 [[5210]] and the Kalman gain register 5203 are inactivated in response to signal *EN/DEN* output from the decoder 510. In this embodiment, the multiplexer 5211 is capable of outputting a signal output from the second multiplier 5309 to the third multiplier 5307 in response to the signal *EN/DEN* output from the decoder 510.

Replace paragraph [0053] with the following amended paragraph [0053]:

When the error *e(n)* converges, *i.e.*, falls within the range of the threshold of visibility *TOV*, the updating circuit 520 updates the tap coefficient of the channel equalizer 300 using the LMS algorithm. As illustrated in FIG. 3, the second multiplier 5309 multiplies the step size μ by a square of the data *y(n)* output from the data register 5313 and outputs the multiplication result to the multiplexer 5211. The multiplexer 5211 then outputs the signal output from the second multiplier 5309 [[5307]] to the third multiplier 5307 in response to the signal *EN/DEN* output from the decoder 510. The third multiplier 5307 multiplies a signal output from the multiplexer 5211 by the signal *e(n)* output from the subtracter 500 and outputs the multiplication result to the adder 5305.

Replace paragraph [0055] with the following amended paragraph [0055]:

Referring to T1 and FIG. 4, in response to the signal *EN/DEN* output from the decoder 510, the error covariance register 5201 [[5210]] and the Kalman gain register 5203 are activated and the multiplexer 5211 outputs a signal output from the Kalman gain register 5203 to the third multiplier 5307. The third multiplier 5307 multiplies the signal *K(n)* output from the multiplexer 5211 by the signal *e(n)* output from the subtracter 500 and outputs the multiplication result to the adder 5305. The adder 5305 adds the signal *c(n-1)* output from the coefficient updating register 5303 and the signal output from the third multiplier 5307 and outputs the addition result *c(n)* to the coefficient updating register 5303.